

(12) UK Patent Application (19) GB (11) 2 154 225 A

(43) Application published 4 Sep 1985

(21) Application No 8403895

(22) Date of filing 14 Feb 1984

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C05F 11/00(52) Domestic classification
C1B 3D4 3DX(56) Documents cited
None(58) Field of search
C1B

(54) Fertilizer from powdered calcified seaweed

(57) A particulate plant food composition comprises powdered calcified seaweed and a sufficient amount of a non-phytotoxic gum to agglomerate it into particulate form. The gum is preferably seaweed gel extract.

The composition can be made by grinding calcified seaweed and then pelleting or granulating it using a non-phytotoxic gum as agglomerating agent. It is applied to the soil in conventional manner as a plant food.

SPECIFICATION

Fertilizer

5 This invention relates to fertilizers. It is known that *Lithothamnium calcareum*, a member of the red algae group of seaweeds, is a valuable source of trace elements required by all growing plants cultivated in horticultural and agricultural crop production. Known as 'maerl' in France and 'calcified seaweed' in the United Kingdom, *Lithothamnium calcareum* is made up of the ~~hardened deposits~~ of seaweed plants transformed by age and chemical reaction ~~while lying on the seabed~~. It has for more than 200 years been dredged in coarse granular ~~form for application to the soil~~, serving as a soil conditioner with the nutritional elements becoming slowly available as plant food.

The value of maerl or calcified seaweed lies in its balanced content of trace elements, which are present in natural form in proportions that have been identified as being substantially the same as the scientifically calculated requirements of plants for vigorous and productive growth.

25 However, notwithstanding its value and usefulness as a supplement to conventional fertilizers, its acceptance has been slow because of difficulty in its application to the soil. As dredged from the natural deposits on the seabed, it has a coarse coral-like structure which takes time to break down when applied directly to the soil. In order to accelerate the availability of its nutritional values to plants, it has become the practise ~~to grind the maerl to a fine powder~~, but even this, while improving the availability of the nutrients, does not result in immediate response by the plants.

Moreover, the application of calcified seaweed as ~~a fine powder~~ involves unevenness of distribution except on windless days: spreading equipment to handle the powder efficiently is not available, since fertilizer-spreading equipment is designed to handle granular materials.

In accordance with the present invention, ~~calcified seaweed is ground~~ and then agglomerated into small particles, such as pellets or granules, preferably not more than 3 mm in maximum dimension, by the use of a water-soluble non-phytotoxic gum. Such particulate compositions constitute the principal embodiment of the present invention. They can be formed in conventional granulating or pelleting equipment.

~~The gum~~ used is desirably one derived from natural rather than synthetic sources. Animal sources include that from the ~~bones, hooves and horns~~, but vegetable ~~gums~~ are preferred and seaweed gel extract, i.e. ~~alginate~~, is the most suitable. It has the advantage of providing nutrients immediately and shows a fast response in crops, while the calcified seaweed releases them slowly. Thus a combination of alginate with calcified seaweed combines nutrients in both immediately available and sustained release forms, and of course the nutrients in the two constituents of the combination are substantially identical. They include, by weight, about 0.6% nitrogen, 7 to 11% potash and 4% phosphorus.

~~Other materials~~ can if desired be included in the particulate compositions, including another source of nitrogen, e.g. sodium nitrate, and other sources of phosphorus and potash. Chilean nitrate of soda, which has a common origin with calcified seaweed in that it has been produced by transformation of seaweed over many geological eras, is a preferred source of extra nitrogen, since its nitrogen is immediately available and it gives no adverse effect on the soil or on other nutrients.

The amount of gum used will be that required to agglomerate the calcified seaweed.

Preliminary experiments indicate that compositions of the present invention give quicker and better growth and, to at least some observers, better tasting vegetables.

CLAIMS

1. A particulate plant food composition comprising powdered calcified seaweed and a sufficient amount of non-phytotoxic gum to agglomerate it into particulate form.
2. A composition as claimed in Claim 1, in which the particles are granules or pellets whose maximum dimension is 3 mm.
3. A composition as claimed in Claim 1 or 2, in which the gum is of animal or vegetable origin.
4. A composition as claimed in Claim 3, in which the gum is seaweed gel extract.
5. A composition as claimed in any preceding claim that also contains other plant nutrients.
6. A method of producing a composition as claimed in any preceding claim, comprising grinding calcified seaweed and then pelleting or granulating it using a non-phytotoxic gum as agglomerating agent.
7. A method of growing plants that includes the step of applying to the soil a composition as claimed in any one of Claims 1 to 5 as a plant food.